Nov. 15, 1949 W. D. FERRIS 2,488,119

DOOR LATCH AND LOCK

Filed July 9, 1946

Fig. 1

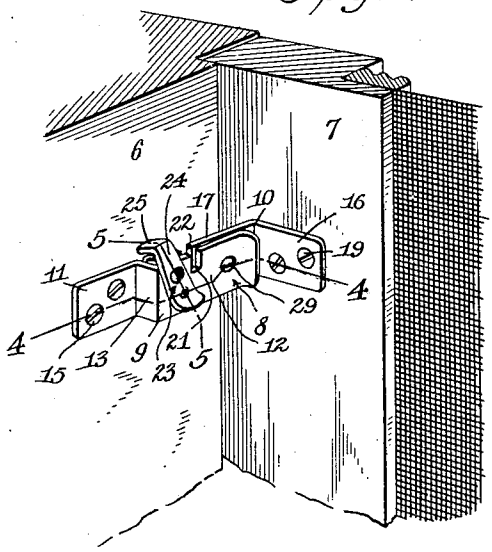



Fig. 2

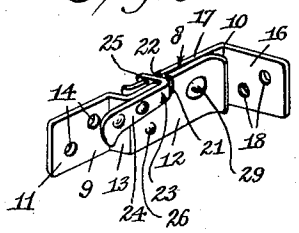



Fig. 3

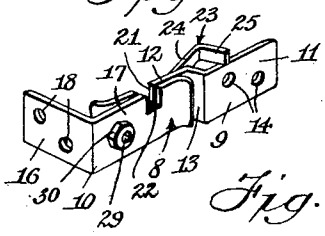



Fig. 4

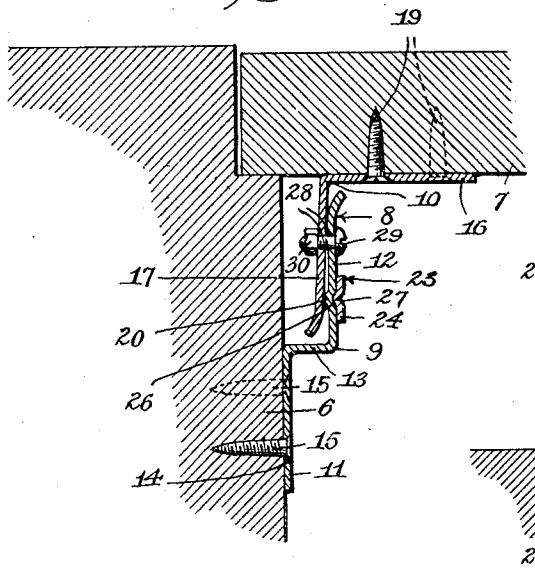



Fig. 5

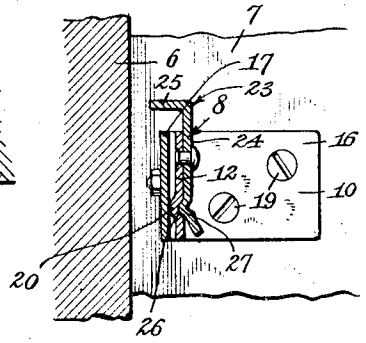
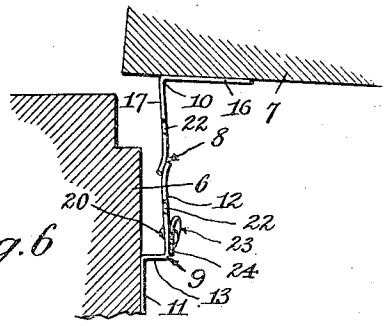



Fig. 6




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## DOOR LATCH AND LOCK

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2 Claims. (Cl. 292—204)

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My invention relates to a combined latch and lock for locking two relatively movable parts together, and it more particularly relates to a friction latch and lock especially designed for use in connection with screen and storm doors.

One of the objects of my invention is to provide a simple and inexpensive device for latching screen and other doors and, under closing movement of the doors, prevent slamming.

Another object is to provide a device which comprises two main elements detachably connected together in the manner in which they are to be used so that the entire device may be fastened to two relatively movable objects—such for example as a door and the jamb of a door frame—as a unit and after securing the two main parts of the device to their respective objects, separate such parts; thus assuring proper alinement or registration of such parts without resorting to preliminary markings on the door and jamb and individually attaching the parts in place; oftentimes only to find that proper positioning of the parts had not taken place. This is often the case when latches or locks are fastened in place by housewives and others unskilled in the art of carpentry.

A further object of my invention is to provide a latch which will act as a cushion during the final portion of the closing movement of a door and will retain the door in closed position and if desired, lock the same.

In the drawings:

Fig. 1 is a perspective view of a portion of a screen door and door jamb showing my combined latch and lock fastened to said objects as a unit.

Fig. 2 is a detached perspective view of the combined lock and latch having the two main parts thereof fastened together so that it may be secured to a door jamb and door as a unit, the combined latch and lock being viewed from the front and top.

Fig. 3 is a detached perspective view of the same, viewed from the rear and top.

Fig. 4 is an enlarged section taken on line 4—4, Fig. 1.

Fig. 5 is an enlarged vertical section taken on line 5—5, Fig. 1.

Fig. 6 is a horizontal section through a portion of a door jamb and a door with the two parts of my improved latch and lock shown in top plan

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view, the lock latch being shown in section and the door being shown approaching its closing movement so as to illustrate the manner in which the two main parts of the combined latch and lock are brought into contact with each other and freed during the final closing movement of the door.

Having reference to the drawings in detail, the numeral 6 designates a door jamb and 7 a door closing against or adapted to close against a stop portion usually provided on a door jamb. The combined latch and lock is designated by the numeral 8 and it comprises two main parts 9 and 10; part 9 to be fastened to the door jamb and part 10 to the door. Each of said parts is formed of metal strap material, somewhat resilient but capable of recovering its normal formation when free of strain. The part 9, which may be termed the jamb part, is bent into substantially Z-formation so as to provide a fastening portion 11, a spring tongue 12 and an intermediate connector portion 13 connecting said fastening portion and spring tongue together. Screw holes 14 are formed in the fastening portion 11 through which screws 15 are passed that thread into the door jamb and secure part 9 securely to the door jamb with the spring tongue extending in a free manner from the connector portion 13 toward the door in spaced relation to the face of the door jamb. The part 10 is of substantially L-formation in cross section to provide a fastening portion 16 and a spring tongue 17 extending in a free manner inwardly from the door to which said part is fastened. The fastening portion is provided with screw holes 18 through which screws 19 are passed that thread into the door from the inner side.

As illustrated in Fig. 6 of the drawings, the spring tongue 12 is at a slight acute angle to the connector portion 13 of part 9 and the spring tongue 17 is at a slight acute angle to the fastening portion 16 of the part 10. The outer or free ends of the tongues 12 and 17 are curved in opposite directions, the spring tongue 12 being curved outwardly away from the door jamb, while the spring tongue 17 is curved inwardly toward the door jamb, the convex sides of these curved portions being adapted, upon closing the door, to ride in contact with each other and flex the tongues so as to retard the closing movement

and prevent slamming of the door. After these curved portions pass each other, the opposing surfaces of the spring tongues ride in contact with each other under frictional action until the door is fully closed and when so closed so maintain the door until sufficient pressure is exerted against the inner side of the door to overcome the friction between the latch parts.

By reason of the angular disposition of the spring tongues mentioned, sufficient friction is created between the two to assure the latching of the door. However, to increase the friction, the spring tongue 12 is provided with a nub 20 onto which the spring tongue 17 rides and thus the latter is spaced along a portion of its length from the confronting surface of the spring tongue 12. Nevertheless, the friction between the two tongues is increased by reason of the additional flexing of the same when the spring tongue 17 rides over the nub 20. It will be apparent, therefore, that the door is latched solely by the frictional contact between the two parts 9 and 10.

In addition to thus latching the door in closed position, I provide means for locking the two parts of the device together so as to prevent the opening of the door from the outer side thereof. For this purpose the spring tongues 12 and 17 are provided at their upper edges with lock notches 21, 22, respectively, and pivotally secured to the outer side of the spring tongue 12 is a lock latch 23. This latch has a flat main portion 24 lying against the outer surface of the spring tongue 12 and an angular portion or hook 25 at its upper end, its lower end being curved outwardly to enable it to be more readily manipulated and when swinging this lock latch from the position shown in Fig. 1 to that shown in Fig. 2, the angular portion or hook 25 will be entered in these lock notches and prevent separation of the two parts of the device.

It is to be noted that the nub 20 formed on the inner side of the spring tongue 12 results in a nick or depression 26 being formed on the outer side of said spring tongue and the lock latch is provided with a retainer nub 27 on its inner surface which is adapted to enter the nick or depression 26 in the spring tongue 12 when said lock latch is swung upwardly into the position shown in Fig. 1. Thus assurance will be had that this lock latch will not accidentally be swung on its pivot and enter the lock notches formed in the spring tongues and thereby lock the door against entrance when under the impression that the door is only latched in closed position. The nick or depression 26 may be termed a socket, which is adapted to receive into it the retainer nub 27.

As shown in Fig. 3, the angular portion or hook 25 may be lengthened so that when the lock latch is in unlocked position this angular portion or hook may rest upon the upper edge of the fastening portion 11 of part 9, in which case the retainer nub 27 formed on the lock latch may be dispensed with.

I wish to particularly stress the fact that this fastening device may be attached as a unit to both the door jamb and door and for this purpose the spring tongues 12 and 17 of the two parts of the combined latch and lock are provided with registering screw holes 28, through which a screw bolt 29 is passed and a nut 30 threaded onto the projecting end thereof to fasten the two parts of the device in what may be termed their normal latching positions. In attaching the unitary structure thus assembled to



the door and jamb, it is only necessary to place them against the door and jamb in the position intended for them, and by means of the screws 15 and 19 the two parts will be fastened in place with the spring tongues in co-action and flexed so as to create the necessary friction between them to maintain the door in closed position. It is to be noted that in order to disconnect the parts 9 and 10 from each other it is only necessary to unthread the screw from the outer side of the device while holding the nut against rotation. This will allow the screw to be easily withdrawn from the registering screw holes 28 and the nut to be received in the palm of the hand underneath the device, or otherwise.

Connecting the two parts of the device together overcomes the difficulty usually encountered in positioning two parts of a latching device to the door and door jamb and dispenses with the need of scribing the intended positions of the two parts of the door and jamb, respectively, and the location of the screw holes, only too often to find, after the parts are individually secured, that the latching of said parts is ineffective. The nub 27 and socket 26 are also used as part-alining means, since they position the parts of the latch in the positions in which they are to be fastened to a door and door jamb, and the screw bolt 29 serves to secure the parts together in their so alined positions.

It is, of course, understood that the feature of my invention which relates to the fastening of the two parts of the device together to form a unitary structure so as to enable the parts to be attached to the door and door jamb as a unit may be incorporated in latches or locks of various kinds and constructions. Insofar as that feature of my invention is concerned, the particular construction or formation of parts of the latching and locking device is of no importance, even though it is particularly described in connection with my improved latch and lock and has a special value as a part of the latter, due to the fact that these parts only cooperate under cam and friction action, except when locked together by the lock latch described. Where herein the term "cam action" is used, I have reference to the oppositely curved ends of the spring tongues which are brought into co-action when said spring tongues first contact each other and are relied upon to strain the tongues under friction and that after the final closing movement of these spring tongues upon each other they are strained to a degree sufficient to maintain the door in closed position under all normal conditions.

Having thus described my invention, what I claim is:

1. A latch and lock for doors and the like, comprising a substantially Z-shaped member having a fastening portion, a resilient tongue and an angularly-disposed connector member connecting the two, and a substantially L-shaped member having a fastening portion and a resilient tongue lying in frictional contact face to face with said first-mentioned resilient tongue so as to overlap, said tongues having their free ends curved in opposite directions to ride in contact with each other when overlapping said tongues and having registering lock notches opening to corresponding edges, and a lock latch movably secured to one of said members and adapted to have a portion thereof entered in said lock notches to lock said members together.

2. A latch and lock for doors and the like,

comprising two members having flexible tongues arranged to contact each other face to face under relative longitudinal movement and having lock notches in corresponding edges, and a lock latch pivotally connected to one of said members and having an angular lock arm adapted to enter said lock notches and thus lock said members together when the door or the like is closed.

WARREN D. FERRIS.

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